**Premixer saves repair parts, labor**

By TERRY BUCHEN

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ENNA, Va. — Walter Montross, superintendent at Westwood Country Club, has almost totally eliminated the need to replace any seals in his sprayers since beginning to use a premixer unit.

“A couple of years ago we were experiencing premature wear on the pump seals of our two Chempro Sprayers,” said Montross, a certified golf course superintendent. “Although there were some initial suspicions that the seals were of poor quality, I believed it was directly attributable to the abrasive materials we were putting into the sprayers. I also found the water-soluble bags of various chemical materials had a negative effect on the seals.”

To the rescue came Howard Meredith, who had formally worked with Chempro Sprayers. Meredith informed Montross that he was building a “premixer” unit that would allow for the chemical materials to be “pulverized and fully dissolved” before circulating through the sprayer filters and, ultimately, the seals. Meredith sold a prototype unit to Montross in 1998 for about $2,000.

“The premixer unit is pretty simple in nature as it breaks down the chemical material through the upper screen that has high pressure nozzles directed at it,” Montross said.

“Once the chemical materials move into the tank, a secondary set of high-pressure nozzles keep them in suspension. The chemicals then travel through a series of filters before they are ready to be transferred into the spray rig.”

There are other benefits. Through a series of quick connect hoses, Montross’ crew members are able to fill the premixer with water and then move the chemical materials to the sprayer unit by simply turning two valves. Once the chemical materials are loaded into the basket, that is the last time they are handled.

The premixer tank holds 80 gallons, so when the initial batch is transferred to the sprayer through a 2-inch-diameter flexible hose with a quick disconnect end piece, they simply refill the premixer with water and transfer the rinsate.

“Lastly,” said Montross, “I have found that if I have one of my assistant superintendents loading the premixer while my spray technician is on the course making an application, I can reduce my overall spray time by as much as two hours. “We have almost totally eliminated the need to replace any seals since we began using the premixer unit,” Montross said.

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**USGA funds new round of research projects**

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- The effect of root-zone material and depth on moisture-retention problems in USGA putting greens by Bernd R. Leinauer at Michigan State University.

- Best management of post-application irrigation to reduce exposure to volatile and foliar pesticide residues and to minimize their conversion to more environmentally mobile products, by Marshall Clark at the University of Massachusetts.

- Surface and Subsurface Water Quality Data Collection and Model Development for a Watershed Scale Turfgrass System by Kevin King at Penn State University.

- Further Evaluation and Modeling of Pesticide Partitioning into the UCR and California Water by Rajkumar Chaudhary at the University of California, Davis.

- Phosphorus fertilization of USGA-type putting greens: placement, rates and leaching, by Beth Guertal at Auburn University.

But perhaps the most fascinating research is being done by Courtney Conway at Washington State University. She is studying burrowing owl conservation on golf courses.

The burrowing owl, Kenna explained, lives in the ground, in the burrows of rodents. WSU scientists have learned to create artificial burrows for these owls on golf courses, where there should be a bountiful food supply.

Kenna pointed to Armbrust’s research into pesticide and nutrient runoff and leaching as a crucial study. It is also being supported by a grant from the federal Environmental Protection Agency as are many other studies of major watersheds of the U.S. Geological Survey.

“Essentially, the goal is to document the water quality and the effects of land uses on water quality,” Kenna said. “We know from all the research that chemicals can reach ground and surface water. If everything is managed correctly and timing is right and labels are followed, we don’t see a problem. But a lot of the pesticides showing up (although in small amounts) are used in the professional lawn care and golf industries. And the peaks come when people are putting out pre-emergents or post-emergents... We want to get a better handle on when the contaminations are occurring. My guess is that it will come from homeowners.”

That study, like many of the other new ones, will not be complete for three years, although others have two-year time limits.

With this latest round, the USGA has climbed to $18 million in funding since 1983.

A pre-mixing implement helps the spray technician save valuable time as well as wear and tear on the sprayer unit.